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ABSTRACT

National performance for 17-year-olds in school, 17-year-olds not in school and young adults aged 26-35 in the area of career and occupational development (COD) was assessed to determine whether or not education status and career development skills are related. Within each of the groups, performance of various subgroups was examined, defined by sex, race, region of country, and parental education. The COD assessment measured performance in the major areas of knowledge and attitudes related to career planning, knowledge about jobs, and generally useful skills. Examination of the differences in average performance reveals that out-of-school 17-year-olds consistently perform less well than the in-school 17-year-olds. Differences in performance were greatest in the area of general knowledge about jobs and in three of the generally useful skill areas: written communication, computation and measurement, and graphic and reference materials (the fourth area being manual/perceptual skills). Corresponding differences do not separate performances of 17-year-olds attending school and adults. Average percentages of these two groups were close to identical on the four generally useful skill areas. The only area in which adults displayed a marked superiority was in knowledge about specific jobs. (TA)

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ED155328

SCHOOL AND THE 17-YEAR-OLD:

A Comparison of Career Development Skills of 17-Year-Olds Attending School and Those Not Attending

by the
National Assessment of Educational Progress

Education Commission of the States
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INTRODUCTION

At age 17, most young Americans are nearing the end of their secondary schooling. Others, however, have already ended their formal education, most often by dropping out of school. Regardless of their education status, nearly all 17-year-olds will eventually be concerned with earning a living. Do 17-year-olds have the knowledge, skills and attitudes that will enable them to get and keep a job? Do differences in such abilities exist between those 17-year-olds who have remained in school and those who have not?

In its assessment of career and occupational development (COD), the National Assessment of Educational Progress (NAEP) measured the performance of both groups of 17-year-olds -- those who were attending school at the time of the assessment and those who were not. Also assessed were 9-year-olds, 13-year-olds and young adults aged 26-35. By comparing the results for 17-year-olds attending and not attending school (referred to in this report as in-school and out-of-school 17-year-olds), we can determine whether or not education status and career development skills are related. To further examine 17-year-old abilities, we can compare the performance of both groups of 17-year-olds to that of the young adults aged 26-35. Young adult performance reflects the career development abilities of a group that has in large part entered the work force and serves as a useful point of reference to aid in putting the 17-year-old results in perspective.

The in-school and out-of-school 17-year-old groups differed in several important characteristics. First, the two groups were unequal in size. Approximately 7% of the 17-year-old population was not in school at the time of the assessment, while about 93% were attending school. Second, the out-of-school population differed from the in-school population in certain demographic characteristics. A considerably larger portion of the out-of-school 17-year-olds lived in the Southeastern region of the country; a higher percentage of the 17-year-olds remaining in school had parents with higher levels of education. In the National Assessment sample, slightly higher percentages of blacks and persons from disadvantaged, urban areas were found in the out-of-school group, while the in-school group contained slightly larger percentages of whites and people from advantaged, urban communities.

In reviewing the results presented here, it should be remembered that a difference in current education status is not necessarily the only difference between the two groups of 17-year-olds. Other background variables may also be related to performance, making it difficult to isolate the effect of any one variable.

The assessment of career and occupational development measured performance in three major areas: knowledge and attitudes related to career planning,

knowledge about jobs and generally useful skills.[1] Knowledge and attitudes related to career planning concerned students' awareness of their own interest and abilities, their work-related experiences and the values they held regarding work. Knowledge about jobs included both knowledge about specific jobs -- duties, pay rates and training requirements -- and about jobs in general, for example, factors considered in hiring and promotions and ways to improve job skills. Generally useful skills were defined as those skills that would be needed for a wide variety of jobs. The skills were divided into four broad categories: computation and measurement skills, written communication skills, skills in using graphic and reference materials and manual/perceptual skills.

National Assessment released approximately half of the exercises administered in the career and occupational development assessment. The unreleased exercises will be reassessed in a future assessment to provide measures of change in ability levels. In this paper, results for both released and unreleased exercises are summarized; however, exercise text appears only for released exercises. Copies of all released COD exercises are available from National Assessment upon request.[2]

Previous COD reports include a general overview of all results from the career and occupational development assessment, a report of adult performance on basic skills and job knowledge, and a report on basic work skills for all ages. Technical reports include an exercise volume, which presents all released exercises with scoring guides and results for these exercises, and a summary volume, which provides documentation of summary results.

In this report, we will first discuss average performance for in-school and out-of-school 17-year-olds and adults for several of the areas described above. We will then describe each area in more detail and present results for specific items. Finally, we will examine differences in performance by reporting groups (sex, race, region of the country, and so forth).

---

[1]A more complete description of the COD assessment and results for four age levels (9, 13, all 17-year-olds and adults aged 26-35) appears in The First National Assessment of Career and Occupational Development: An Overview, Report 05-COD-00, 1973-74 Assessment of Career and Occupational Development (Denver, Colo.: National Assessment of Educational Progress, 1976).

[2]Career and Occupational Development Technical Report: Exercise Volume, Report 05-COD-20, 1973-74 Assessment of Career and Occupational Development (Denver, Colo.: National Assessment of Educational Progress, 1977).

SUMMARY OF RESULTS

Table 1 displays averages of percentages of success for each of the three population groups on identical exercises and shows the differences in performance between in- and out-of-school 17-year-olds and between in-school 17-year-olds and adults. The number of items included in each average is given.

TABLE 1. Average Performance and Differences in Average Performances of In-School and Out-of-School 17-Year-Olds and Adults in Various Areas of Career and Occupational Development

	Age 17 Out-of-School	Difference	Age 17 In-School	Difference	Adult
Knowledge and attitudes related to career planning					
Knowledge about one's own interests and abilities -- number of items, 10	54%	(12)	66%	--	(+)*
Values related to work -- number of items, 21	64	(9)	73	(3)	76
Knowledge about jobs					
Knowledge about jobs in general -- number of items, 21	50	(18)	68	(-3)	65
Knowledge about specific jobs -- number of items, 48	66	(10)	76	(8)	84
Generally useful skills					
Written communication -- number of items, 20	50	(14)	64	(2)	66
Computation and measurement -- number of items, 28	55	(16)	71	(1)	72
Graphic and reference materials skills -- number of items, 21	66	(15)	81	(2)	83
Manual/perceptual skills -- number of items, 11	59	(7)	66	(0)	66

**Insufficient number of identical adult items for a summary.*

Positive differences between the in- and out-of-school 17-year-olds indicate that the in-school average percentage of success was higher than that of the out-of-school group. Positive differences between in-school 17-year-olds and adults means that the adults did better than the in-school 17-year-olds, while negative differences show that the in-school 17-year-olds outperformed the adults.

Items about work and work-related experiences are not included in Table 1 because there were relatively few items in this area and some items were not administered to all three age groups. The number of adult items identical to 17-year-old items in the "knowledge about one's own interests and abilities" category was insufficient for a meaningful summary.

A brief examination of the differences in average performances reveals that the out-of-school 17-year-olds consistently perform less well than the in-school 17-year-olds. The differences in performance were greatest in the area of general knowledge about jobs and in three of the generally useful skills areas: written communication, computation and measurement, and graphic and reference materials skills. In the manual/perceptual skills area, which contained a number of items not as closely related as other areas were to subjects taught in school, 7 percentage points separated the two groups.

Corresponding differences do not separate the performances of 17-year-olds attending school and adults. The average percentages of in-school 17-year-olds and adults were close to identical on the four generally useful skills areas. The only area in which adults displayed a marked superiority was in knowledge about specific jobs.

In the following chapters, performance on each of the areas included in the COD assessment will be more closely examined. Sample exercises and results are displayed to give readers an idea of the type of items used and the variety of content measured.

KNOWLEDGE AND ATTITUDES RELATED TO CAREER DECISIONS

Comparisons of in- and out-of-school 17-year-olds' knowledge about career decisions is complicated by the fact that the two groups of 17-year-olds are in very different situations. Questions that are meaningful for one may not be so for the other. For example, in-school 17-year-olds were asked about jobs they would like to have or plan to have in the future. They were then asked about their reasons for choosing the job that they did. However, it was assumed that out-of-school 17-year-olds had already made choices about jobs and thus questioning focused more on their job situation.

It is also difficult to compare work experiences of the two groups. The questions about work experience for out-of-school 17-year-olds paralleled those for adults, including questions about job likes, dislikes and satisfactions, while those for in-school 17-year-olds concentrated on length and type of part-time work experience and did not examine feelings about the experience.

The job aspirations of in-school 17-year-olds have been extensively described in other National Assessment reports.[1] We have seen that the distribution of first-choice future jobs among these 17-year-olds is not consistent with the distribution of jobs held by the adults. A considerably higher proportion of the 17-year-olds aspired to professional jobs than the proportion of adults stating that they held such jobs. Out-of-school 17-year-olds were not asked about their first-choice future job since it was assumed that they were already holding jobs. However, we do have considerable information about the jobs they held, things they liked and disliked about their jobs and also whether they would like to learn any other jobs.

Work Experiences of Out-of-School 17-Year-Olds and Adults

Forty-six percent of the 17-year-olds not in school stated they held a job at the time of the assessment; 38% said that this was a full-time job. An additional 42% said that they had held a job at some time in the past, with 28% indicating that the job had been full time. Major categories of present and past jobs held by out-of-school 17-year-olds appear in Table 2.

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[1] The First National Assessment of Career and Occupational Development: An Overview, Report 05-COD-00, 1973-74 Assessment of Career and Occupational Development (Denver, Colo.: National Assessment of Educational Progress, 1976).

TABLE 2. Major Categories of Past and Present Jobs Held by Out-of-School 17-Year-Olds

	Percentage of Out-of-School 17-Year-Olds Holding Jobs in Various Categories	
	Present Job	Past Job
Service	9%	18%
Operative	8	6
Laborer	6	5
Crafts	6	3
Clerical	5	5
Professional	2	1
Homemaker	2	--
Sales	1	2
Manager	1	--

Adult work experiences differed from those of the out-of-school 17-year-olds. Eighty-nine percent of the adults stated that they held jobs at the time of the assessment, with 82% holding full-time jobs. The definition of "job" used by National Assessment included unpaid careers such as homemaking. While very few of the out-of-school 17-year-olds were homemakers, 19% of the adults stated that this was their present occupation. Nearly all of the adults not having a job at the time of the assessment had had one at one time in the past. Major occupational categories for adults appear in Table 3.

TABLE 3. Major Categories of Jobs Held by Adults

Housewife	19%	Proprietor, owner	3%
Professional	15	Sales	3
Manager, administrator	11	Technical	2
Clerical	9	Laborer	2
Crafts	8	Farmer, farm manager	1
Operative	8	Protective service	1
Service	5		

Of course, many more adults than 17-year-olds held professional and managerial jobs. These jobs often are not entry-level positions and one would probably not expect to find 17-year-olds holding them. Out-of-school 17-year-olds were most likely to hold service and operative jobs.

Out-of-school 17-year-olds and adults were asked what they liked and disliked about either their present or past jobs, what satisfactions they got from their jobs and what other jobs they would like to learn. Both age groups found more to like than to dislike in their jobs, although many more adults than out-of-school 17-year-olds named two or more things that they liked and disliked (see Table 4). Adults were much more likely than out-of-school 17-year-olds to name two or more sources of satisfaction with their work -- 71% of them did so, compared to 24% of the out-of-school 17-year-olds.

TABLE 4. Percentages of Out-of-School 17-Year-Olds and Adults Naming at Least Two Things They Liked and Two Things They Disliked About Their Jobs

	Out-of-School 17-Year-Olds	Adults
Percent giving at least two things they liked	66%	92%
Percent giving at least two things they disliked	47	66

The desire to learn new jobs appeared to be fairly similar for out-of-school 17-year-olds and adults. Sixty-one percent of the 17-year-olds and 58% of the adults named at least two jobs, in addition to their own, that they would like to learn to do. Jobs in which each age group was most interested are listed in Table 5. Both groups mentioned professional jobs most often, but out-of-school 17-year-olds were more likely than adults to name crafts, clerical and operative occupations.

Knowledge About One's Own Interests and Abilities

To make an informed career choice, one must be aware of personal likes, dislikes, interests, strengths and weaknesses that would affect performance and satisfaction in a career. Seventeen-year-olds and adults responded to questions about their activities in seeking career planning advice and about their perceptions of their own interests and abilities. Knowledge about oneself is a difficult concept to measure, since it is often hard to verify the accuracy of a self-appraisal. Thus, the items assessing knowledge of one's own skills and abilities reflect the respondents' judgments about their own interests and skills and do not inquire into the validity of the judgments.

Seventeen-year-olds were asked about their activities in obtaining information and assistance for career planning. Approximately 72% of the in-school 17-year-olds, but only 46% of the out-of-school 17-year-olds, had talked to

TABLE 5. Categories of Jobs Out-of-School 17-Year-Olds and Adults Were Interested in Learning

	Percent Mentioning Category at Least Once*	
	Out-of-School 17-Year-Olds	Adults
Professional	35%	50%
Manager, administrator	4	10
Clerical	24	14
Crafts	29	18
Operative	16	7
Service	14	11
Sales	3	4
Technical	10	9
Protective service	2	3

**Respondents were given more than one opportunity to answer.*

someone older than themselves who had some awareness of their capabilities. Table 6 shows the types of people with whom 17-year-olds had discussed their plans. Approximately two-fifths of the in-school 17-year-olds and one-fourth of the out-of-school 17-year-olds had discussed their plans with their friends.

TABLE 6. Types of People With Whom In- and Out-of-School 17-Year-Olds Had Discussed Their Future Plans

	Percentages Mentioning at Least One Type*	
Type of Person	In-School 17-Year-Olds	Out-of-School 17-Year-Olds
School counselor, advisor	36%	13%
Teacher	14	7
Parents	64	34
Other older adult	15	11
Friends	39	25

**Percentages total more than 100% because respondents were given three opportunities to name persons they had talked with.*

Seventeen-year-olds who were attending school were much more likely to have taken aptitude tests to explore their interests and abilities than were those not in school. However, very few in either group had discussed the results of the tests with someone qualified to advise them. Forty-two percent and 24% of the in- and out-of-school 17-year-olds, respectively, said that they had taken some type of aptitude test, but only 16% and 13% of these groups stated that they had discussed the test with someone qualified to advise them. In other words, about two-fifths of the in-school 17-year-olds and slightly over half of the out-of-school 17-year-olds who had taken such tests had discussed the results with a person qualified to interpret them. Adults were more likely than 17-year-olds to have sought information about themselves through aptitude tests. Sixty-two percent of the adults had taken some type of aptitude test, and about half of the adults who had taken such a test had discussed the results with someone equipped to advise them.

Job-Related Values

Getting and keeping a job depend on more than having a set of specific work skills. Effective work habits and a positive attitude toward work are also necessary for satisfactory job performance. The worker who is habitually late, who shirks responsibility or who does not get along with fellow workers is not a prime candidate for success.

National Assessment examined a number of job-related values and attitudes. Questions about work habits included such things as assuming responsibility for one's own actions and having effective interpersonal skills. Items concerning attitudes toward work involved recognizing restrictive hiring practices, knowing ways to make changes in working conditions and understanding the variety of reasons why people work. The questions asked of 17-year-olds and adults in this group of items touched on a number of values and attitudes. Exhibit 1 shows one of the exercises concerning concepts of worker responsibility.

To answer this item acceptably, the respondent had to state that the worker was at least in some measure responsible for his actions. Eighty-nine percent of the in-school 17-year-olds, 77% of the out-of-school 17-year-olds and 88% of the adults did so. Three acceptable response categories were used for this exercise: (1) takes complete responsibility, (2) takes partial responsibility and (3) distinguishes moral from other responsibility. Percentages of responses in each category are also shown in the exhibit.

Another item concerned recognizing and being willing to change restrictive hiring policies. Respondents were presented with a hypothetical hiring policy and asked to write their own policies. This item appears in Exhibit 2. Very few respondents in any group liberalized the sex policy, perhaps because they felt that the word "stewardesses" automatically limited the group being considered to women or perhaps because they simply felt that flight attendants should be women.

EXHIBIT 1. Job-Related Values: Sample Exercise and National Results

Suppose you are a factory worker operating a machine which has a special safety shield on it. You are required to put up the safety shield whenever the machine is being used so that hot pieces of metal which come off the machine cannot hit and burn other workers. One day you are operating the machine without putting up the safety shield. A piece of hot metal flies through the air and severely burns another worker who was in a place where he wasn't supposed to be.

A. Are you responsible for the injury to the other person?

- ⬭ Yes
- ⬭ No
- ⬭ I don't know.

B. Please give me a reason for your answer.

_____

_____

	Percentages of Responses: Part B		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
1. Takes complete responsibility	79%	70%	81%
2. Takes partial responsibility	8	5	3
3. Distinguishes moral from other responsibility	3	2	4

Results on this item were very similar for all three age levels discussed. Adults were somewhat more likely than 17-year-olds to liberalize the sex policy.

To ascertain whether 17-year-olds and adults knew about and valued peaceful methods of protest, they were asked what they would do if their places of employment made a new rule that they thought was unfair. Eighty-seven percent of the in-school 17-year-olds, 82% of the out-of-school 17-year-olds and 88% of the adults gave at least one acceptable answer. The most common acceptable responses and percentages giving these responses at least once (people had two opportunities to respond) are shown in Table 7.

The item shown in Exhibit 3 was used to determine whether people recognized the differing motivations that people have for working and appreciated different values associated with different occupations.

EXHIBIT 2. Job-Related Values: Sample Exercise and National Results

Suppose a large airline has the following policy:

"All stewardesses must be unmarried women between the ages of 21 and 35."

How would you change the policy? Write your new policy below.

_____

_____

_____

_____

_____

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Liberalized marriage policy	66%	61%	65%
Liberalized age policy	49	47	48
Liberalized sex policy	8	5	15

_____

_____

TABLE 7. Job-Related Values: National Results -- Question About Unfair Rule

	Percentages Using Response Category at Least Once*		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Acceptable responses			
Discuss with someone with authority in the company	70%	72%	69%
Talk with fellow workers	20	17	18
Protest or petition	13	10	14
Discuss with other authorities	6	4	12
Unacceptable responses			
Obey, no attempt to change	13	12	10

**Percentages total more than 100% because respondents had more than one opportunity to answer.*

EXHIBIT 3. Job-Related Values: Sample Exercise and National Results

A. Mr. Smith has a job. All day long he runs a machine that punches holes in leather belts. He does the same thing every day. Do you think it is possible that Mr. Smith likes his job?

	National Percentages		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
○ Yes	47%	52%	50%
○ No	42	25	31
○ I don't know.	10*	23	19

B. Give a reason for your answer.

_____

_____

_____

Percentages Saying Yes and Giving an Acceptable Reason

In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
39%	48%	39%

**Figures do not total 100% because of rounding.*

The out-of-school 17-year-olds were slightly more willing to say that Mr. Smith might like his job and were better able to give reasons than either the in-school 17-year-olds or adults. Many people at all ages seemed unable to believe that Mr. Smith might like his job.

KNOWLEDGE ABOUT JOBS

Increasing students' knowledge about different occupations and about the world of work in general is a major objective of career education programs. Knowledge about a wide range of occupations is essential to making informed choices about a career. Knowledge about situations and attitudes that may confront one in any job is helpful for a smooth transition from the education setting to the work place. For the purposes of the career and occupational development assessment, knowledge about jobs was divided into two categories: (1) knowledge about specific jobs and (2) knowledge about jobs in general.

Knowledge About Specific Jobs

Items measuring knowledge about specific jobs asked about such things as the duties, relative pay rates and amount of training required for specific jobs. Results for several sample exercises in these areas are shown below.

Performance of out-of-school 17-year-olds did not differ very greatly from those in school on what appeared to be a fairly easy item about the duties of an automobile repairman (see Exhibit 4). Seventeen-year-olds not in school were less proficient than those attending school in recognizing the duties of a social worker. Those not attending school were more likely to view a policeman as filling the role described than those in school.

As seen in Exhibit 5, all 17-year-olds were somewhat vague on the training requirements for the jobs shown. Adults demonstrated a markedly greater awareness of such requirements. While out-of-school 17-year-olds were less familiar than those in school with the relative length of training required for a plumber, they were slightly more familiar with the relative length of training needed to become a tool designer and a draftsman.

Slightly over half of the out-of-school 17-year-olds (54%) were aware that a secretary usually makes more money than a telephone operator, nurse's aid or store clerk, while approximately 70% of the in-school 17-year-olds and adults answered the question correctly. While in-school 17-year-olds performed better than out-of-school 17-year-olds on a question concerning the relative pay of an electrical engineer, draftsman, computer programmer and technical writer -- 45% answering correctly compared to 28% -- adults outperformed both groups, with 65% answering correctly that an electrical engineer usually earns the most.

Knowledge About Jobs in General

The general job-knowledge items covered such things as career planning, obtaining information about jobs and recognizing factors that influence hiring

EXHIBIT 4. Specific Job Knowledge: Sample Exercises and National Results

Which one of the following jobs requires heavy lifting, crawling and bending?

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
● Automobile repairman	90%	85%	94%
○ Salesman	+*	1	+
○ Barber	+	+	+
○ Railroad engineer	8	11	5
○ I don't know.	1**	1**	+**

Which person below spends the most time helping people with their personal and family problems?

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
○ Policeman	3%	12%	2%
○ Teacher	1	2	1
● Social worker	93	80	95
○ Banker	2	1	1
○ I don't know.	2**	3**	1

Rounded percents less than one.
***Figures do not add to 100% because of rounding.*

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and promotions. The exercise shown in Exhibit 6 involved planning for career development or change. To be included in the percentage of persons answering the question correctly, a respondent had to give five or more "acceptable" responses.

Once again, the performances of in-school 17-year-olds and adults were quite similar, while that of out-of-school 17-year-olds was substantially lower. Responses most often given concerned working conditions, personal satisfactions to be obtained from a job, qualifications one has for a job and personal abilities or constraints that might affect one's choices. Adults, more often than 17-year-olds, also mentioned the prestige, status and opportunities for advancement that one might gain from a job.

A question about factors to be considered in accepting or rejecting a promotion concerned a hypothetical situation in which the employee was promoted to a better paying job involving supervision of fellow workers. Respondents were asked what factors, besides salary, might make the employee accept the position and what factors might make him/her reject it. Table 8 shows the percentages

EXHIBIT 5. Specific Job Knowledge: Sample Exercises and National Results

Which one of the following jobs usually requires the LONGEST period of training?

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
○ Manicurist	10%	17%	4%
● Plumber	64	48	80
○ Assembly line worker	11	11	6
○ Truck driver	7	14	4
○ I don't know.	8	9*	6

Which one of the following jobs usually requires the LONGEST period of training?

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
○ Airline ticket agent	1%	4%	1%
● Tool designer	24	31	45
○ Model	5	6	2
○ Draftsman	61	46	44
○ I don't know.	9	13	7*

**Figures do not total 100% because of rounding.*

EXHIBIT 6. General Job Knowledge: Sample Exercise and National Results

List ten different things that a person should think about in choosing a job or career.

(1) _____ (6) _____
(2) _____ (7) _____
(3) _____ (8) _____
(4) _____ (9) _____
(5) _____ (10) _____

Percentages Giving Five or More Acceptable Responses

In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
85%	51%	81%

giving at least two acceptable reasons for accepting and rejecting the promotion. Respondents were as adept in giving reasons for accepting the promotion as for rejecting it.

TABLE 8. General Job Knowledge: National Results -- Promotion on a Job

Percentages Giving at Least Two Acceptable Reasons for Accepting a Promotion (Besides Salary)

In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
92%	73%	86%

Percentages Giving at Least Two Acceptable Reasons for Rejecting a Promotion (Besides Salary)

In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
92%	70%	86%

Another exercise concerned methods of getting information about jobs (see Exhibit 7). This item was not administered to adults. Over half the out-of-school 17-year-olds and nearly three-fourths of the in-school 17-year-olds named at least two places to go to find information about jobs.

Sources most often listed were talking to or observing people in the field, reading about the job and contacting the personnel office of the company. In-school 17-year-olds were more likely to consider a counselor or guidance officer as a source of information than out-of-school 17-year-olds were; however, less than a third of those in school listed someone in a counseling role as an information source.

As an indication of their awareness of jobs available to them, 17-year-olds were asked to list types of part-time work they could do in their towns. In-school 17-year-olds were somewhat better able than those not in school to identify kinds of part-time work available -- 76% of those in school compared to 62% of those out of school named at least three reasonable types of part-time work.

Generally Useful Skills

A person needs certain skills to get almost any job. The skills measured by the career and occupational development assessment involved more than minimal

EXHIBIT 7. General Job Knowledge: Sample Exercise and National Results

Suppose you want to find out more about a job you are interested in. What are five things you could do NOW to find out more about the job before you take the job or begin job training?

(1) _____ (4) _____

(2) _____ (5) _____

(3) _____

Percentages Giving at Least Two Acceptable Responses

In-School 17-Year-Olds	Out-of-School 17-Year-Olds
73%	56%

skills in reading, writing and arithmetic. However, the skills included did not demand any specialized courses, such as algebra, and virtually all the skills are found within the standard curriculum for grades 1 through 8. To assess generally useful skills, abilities were measured in four areas: (1) computation and measurement, (2) written communication, (3) graphic and reference materials and (4) manual/perceptual skills.

Computation and Measurement Skills

The computation and measurement items assessed skills in working with numbers and numerical concepts. There were problems requiring computation -- addition, subtraction, multiplication and division -- for their solution and also tasks that involved common measurement conventions. Several examples of computation and measurement items are presented here.

One item on measurement skills involved measuring a line with a ruler. The exact length of the line was 3 3/8 inches, but since the rulers were not of high quality, anything between or including 3 1/4 to 3 1/2 inches was considered acceptable. A difference of 14 percentage points separated the performance of the out-of-school 17-year-olds from that of the in-school 17-year-olds and adults. Eighty-two percent of the in-school 17-year-olds and adults measured the line correctly, compared with 68% of the out-of-school 17-year-olds.

There was also a difference in ability to complete measurement conversions. Several examples of this type of question and results are shown in Exhibit 8.

EXHIBIT 8. Computation and Measurement:
Sample Exercise and National Results

		Percentage Answering Correctly		
		In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
30 inches = ___(2½)___ ft.		71%	36%	62%
16 ounces = ___(1)___ lb.		90	77	92

Computing a finance charge proved a difficult task for all 17-year-olds. One-half of the in-school 17-year-olds and slightly under one-third of the out-of-school 17-year-olds completed the task correctly; about two-thirds of the adults gave the correct answer. The item and results appear in Exhibit 9.

EXHIBIT 9. Computation and Measurement:
Sample Exercise and National Results

Suppose you purchased $200.00 worth of merchandise from a store on an installment plan. You are to make 24 monthly payments of $11.35 each. How much money in finance charges will you have paid at the end of two years?

ANSWER ___($72.40)___

Percentage Answering Correctly

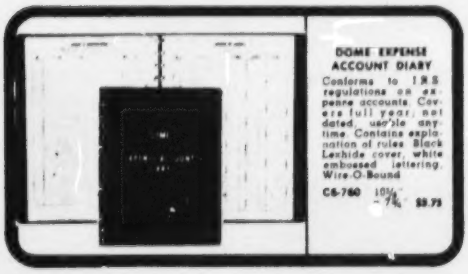
In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
50%	30%	66%

Written Communication

The exercises measuring writing ability were strictly practical items that required certain writing skills but did not demand any particular creative ability. For example, one exercise involved filling out a mail order form and another concerned job application skills.

Approximately one-third of the out-of-school 17-year-olds had difficulty in filling in the order lines on a mail order form. Most of the 17-year-olds and adults could fill in the name and address acceptably. This item and national results appear in Exhibit 10.

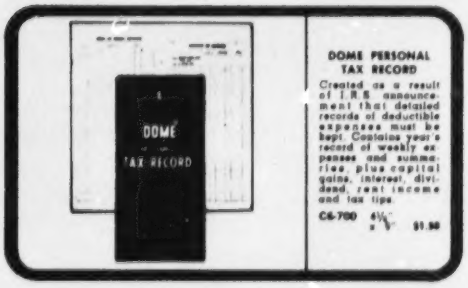
EXHIBIT 10. Written Communication Skills: Sample Exercise and National Results



DOME EXPENSE ACCOUNT DIARY

Conforms to I.R.S. regulations on expense accounts. Covers full year, not dated, use any time. Contains explanation of rules. Black Leshide cover, white embossed lettering. Wire-O-Bound.

C6-760 10¾" – 7¾" $8.75



DOME PERSONAL TAX RECORD

Created as a result of I.R.S. announcement that detailed records of deductible expenses must be kept. Contains year's record of weekly expenses and summaries, plus capital gains, interest, dividend, rent income and tax tips.

C6-700 6¾" x 9¼" $1.50

DIXIE ADJUSTABLE DISPENSER

This stainless steel dispenser will work with 13 sizes of Dixie Cups, allowing you to switch sizes without purchasing a new dispenser. One screw-type adjustment is all that is necessary. A clear acetate window lets you see when the dispenser needs reloading. Comes with wall bracket and screws. Size 15⅞" long, 3-11/16" wide. Fits the following Dixie Cups: #134, 7013, 7014, 7015, 4, 37, 44, 45, 47, 52, 58, COS-01.

K3-DS-115 ..... $8.55

Fill out the order blank below to order one of each of the items pictured on the opposite page. Use the name of Pat Doe and the address of 100 Center Street, Atlanta, Georgia 30304.

HAYES DISTRIBUTING INC. 269 South Havana Denver, Colorado 80232

Date _____

Name _____

Address _____

City _____ State _____ Zip _____

CATALOG NUMBER	QUANTITY	DESCRIPTION	PRICE EACH	TOTAL AMOUNT

SHIPPING AND HANDLING CHARGES

$ .00 to $2.00 add $.30 | $4.01 to $6.00 add $.75
$2.01 to $3.00 add $.55 | $6.01 to $8.00 add $.85
$3.01 to $4.00 add $.80 | $8.01 to $9.00 add $.95
Over $9.00 add $.00

TOTAL
SHIPPING & HANDLING
TOTAL AMOUNT ENCLOSED

	National Percentages Answering Acceptably*		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Date	93%	78%	90%
Name	99	97	97
Address	98	94	96
Expense account diary	82	62	84
Personal tax record	82	61	82
Adjustable dispenser	82	62	83

**Criteria for acceptable responses are found in the* Career and Occupational Development Technical Report: Exercise Volume, *Report 05-COD-20, 1973-74 Assessment of Career and Occupational Development (Denver, Colo.: National Assessment of Educational Progress, 1977).*

Seventeen-year-olds and adults were also asked to write a job application letter. The presence or absence of a number of different elements in the letter determined its acceptability. For example, an effective letter included such things as a proper greeting, closing and signature; a method for the employer to contact the applicant; and the applicant's qualifications for the job. Table 9 shows percentages of success for in- and out-of-school 17-year-olds and adults on several of the elements scored in the letter. Less than one-fifth of the out-of-school 17-year-olds remembered to include a means by which the employer could contact them; more than twice as many in-school 17-year-olds and adults successfully included this element.

TABLE 9. Job Application Letter: National Results

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Letter format			
Greeting	94%	70%	88%
Closing and signature	81	65	78
Return address	21	9	24
Inside address	34	11	39
Letter content			
Gave qualifications	94	83	90
Gave method of being contacted	37	18	42
Described job applying for	80	56	82

Graphic and Reference Materials

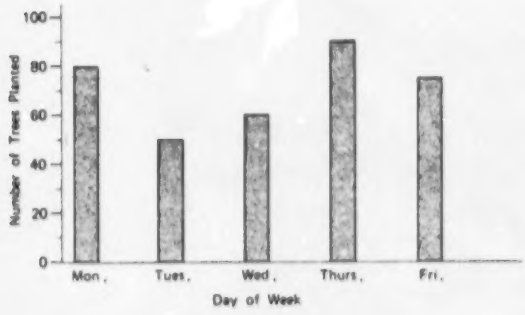
Graphic and reference materials skills dealt with the ability to obtain and interpret information by using various materials -- for example, reference books, graphs, tables and measuring instruments. The items measured proficiency in a number of practical operations, including using a dictionary, using a telephone book and reading a federal income tax table.

Most respondents were successful in using a telephone book: 88% of the in-school 17-year-olds, 84% of the out-of-school 17-year-olds and 93% of the adults found the requested telephone number in less than three minutes.

The exercise shown in Exhibit 11 required the use of a bar graph. Respondents were fairly successful at identifying amounts that corresponded to demarcations on the graph axis; they had more difficulty when the point shown on the graph fell between two demarcations.

EXHIBIT 11. Graphic and Reference Materials:
Sample Exercise and National Results

Below is a bar graph that shows the number of trees planted along a highway each week.



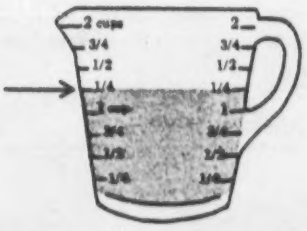
The graph shows that 80 trees were planted on Monday and 50 trees were planted on Tuesday.

		Percentage Answering Correctly		
		In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
A.	How many trees were planted on Wednesday?			
	ANSWER (60)	97%	93%	94%
B.	How many trees were planted on Thursday?			
	ANSWER (90)	89	69	83
C.	How many trees were planted on Friday?			
	ANSWER (75)	55	28	50

In-school 17-year-olds and adults showed a very similar performance on four items requiring the use of a sales tax table -- average performance on the four items for each of these groups was 85%, while for out-of-school 17-year-olds it was 67%, a difference of 18 percentage points.

Exhibit 12 presents an item that asked respondents to read a measuring instrument. A sizable portion of the out-of-school 17-year-olds and adults -- 20% and 14%, respectively -- apparently only saw the "1/4" marking and assumed that 1/4 was the correct answer.

EXHIBIT 12. Graphic and Reference Skills: Sample Exercise and National Results



The measuring cup above is filled with water to the line marked by the arrow. How much water is in the measuring cup?

	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
1/4 cup	7%	20%	14%
1 cup	+*	1	+
1 1/4 cups	93	79	85
2 1/4 cups	+	+	+
I don't know.	+	+	+**

**Rounded percents less than one.*
***Figures do not total 100% because of rounding.*

Manual/Perceptual Skills

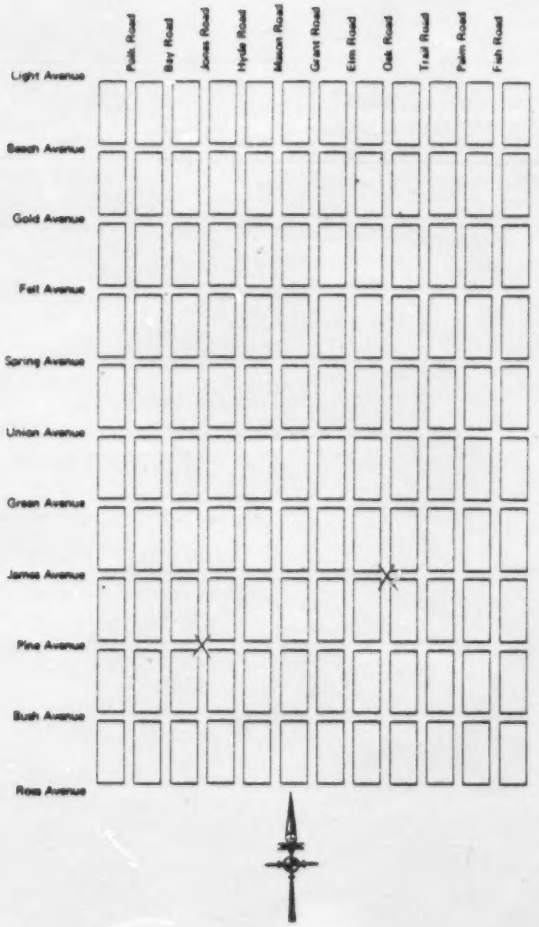
Manual/perceptual skills include a wide range of behaviors involving the coordination of perceptions -- visual, aural or otherwise -- and motor or muscular actions. Since many of these skills are difficult to measure in the assessment situation, the assessment covered a limited area. Included in the manual/perceptual skills section were: (1) following directions to manipulate objects, (2) using measurement instruments and (3) drawing a three-dimensional object. Some of the exercises about using measurement instruments were also summarized in the computation and measurement section.

Exhibit 13 shows an item used to assess ability to follow directions and manipulate objects. Respondents heard the directions printed to the right of the map but did not see them. They had to coordinate the instructions they heard with the movement of their pencils on the map. Ninety percent of the in-school 17-year-olds, 80% of the out-of-school 17-year-olds and 86% of the adults finished at the proper end point.

Respondents were asked to determine the length and weight of an object by estimation. All three groups were more successful in estimating the length than the weight. Percentages of success are shown in Table 10.

Another manual/perceptual skill item involved drawing the three-dimensional objects shown in Exhibit 14. Drawings were scored for three elements: (1) objects in correct relative position to each other; (2) objects drawn in perspective, showing third dimension; and (3) objects of correct size relative to each other. Percentages of success for each group on each element are also shown in Exhibit 14.

EXHIBIT 13. Manual/Perceptual Skills: Sample Exercise



On this page is a map of streets in a city. The compass at the bottom of the map tells you which direction is north, south, east and west. First, I will tell you where you are in the city. Then I will give you instructions to follow to get from that place to another, such as, "Go one street west on Pine Avenue and then two streets north on Ray Road." You must listen carefully to me because I will not repeat the instructions. You should be at a certain place when I finish giving you the instructions.

Put your pencil point on the red X on the map. With your pencil point on the red X, you are at the corner of Pine Avenue and Jones Road.

This is where you are now. You may draw a line on the map with your pencil as I tell you where to go. Here are the instructions:

Go four streets north on Jones Road and hold your pencil at that point.

Now go five streets east on Spring Avenue and hold your pencil at that point.

Now go three streets south on Oak Road and hold your pencil at that point.

Now mark an X at the corner of the two streets where you are now.

TABLE 10. Manual/Perceptual Skills: Results for Estimating the Length and Weight of an Object

	Percentage Estimating Correctly		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Length	67%	58%	56%
Weight	33	41	41

EXHIBIT 14. Manual/Perceptual Skills: National Results -- Three-Dimensional Drawing

	Percentages of Success for Each Element		
	In-School 17-Year-Olds	Out-of-School 17-Year-Olds	Adults
Relative position of objects	78%	69%	70%
Three dimensionality	62	52	56
Relative size	21	17	20

SUMMARY OF GROUP RESULTS

In the preceding sections, we have described national performance for three groups of respondents -- 17-year-olds in school, 17-year-olds not in school and young adults aged 26-35. Within each of these groups, we can also examine the performance of various subgroups, defined by sex, race, region of the country and so forth. Since subgroup performance for adults has been reported elsewhere by National Assessment,[1] we will only examine the differences between population subgroups of in-school and out-of-school 17-year-olds.

Population Groups Included in the Study

National Assessment generally reports results by five types of groups: sex, race, region of the country, level of parental education, and size and type of community lived in. However, since the sample of out-of-school 17-year-olds was fairly small, there were not enough respondents to provide an adequate sample for each of the seven size-and-type-of-community groups usually reported. Thus, results for size-and-type-of-community groupings do not appear in this report. Definitions of the groups included in the other four reporting categories follow.

Sex

Results are presented for males and females.

Race

Currently, results are reported for blacks and whites.

Region

The country has been divided into four regions -- Northeast, Southeast, Central and West. The states that are included in each region are shown in Exhibit 15.

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[1] Adult Work Skills and Knowledge, Report 05-COD-01, 1973-74 Assessment of Career and Occupational Development (Denver, Colo.: National Assessment of Educational Progress, 1976).

EXHIBIT 15. National Assessment
Geographic Regions

Parental Education

Four categories of respondents with respect to parental education are defined by National Assessment. Those categories include: (1) those whose parents have had no high school education, (2) those who have at least one parent with some high school education, (3) those who have at least one parent who graduated from high school and (4) those who have at least one parent who has had some post high school education.

Population Group Results

In comparing results for the various groups of in- and out-of-school 17-year-olds, we will only consider results on identical groups of exercises. Trends in performance are summarized here; average percentages of success for each group on each of the four item sets included in this report appear in Appendix A.

Sex

In-school 17-year-old females performed better than their male counterparts on items concerned with job-related values and knowledge about jobs. In-school male and female average performances were nearly identical on items measuring knowledge of one's own interests and abilities and generally useful skills. Out-of-school males performed 9 percentage points better than females on knowledge of one's own interests and abilities items; there was no appreciable difference between the sexes for the out-of-school group in other areas.

Male and female differences on subgroups of items within the four career and occupational development areas sometimes varied from their differences on

the entire set of items in an area.[2] For example, in the area of generally useful skills, for both 17-year-old groups, females did considerably better than males on written communication skills, while males displayed higher percentages than females on computation and measurement. Females displayed more knowledge about jobs in general; male and female overall performances were about the same on knowledge about specific jobs.

Race

Performance of black 17-year-olds was below that of whites on nearly all areas of the career and occupational development assessment. For both the in- and out-of-school groups, divergences were greatest in the areas of generally useful skills and knowledge about jobs. In the out-of-school group, blacks and whites were about the same in their ability to describe their perceptions of their own interests and abilities.

Blacks who were in school did not perform appreciably better than whites who were not in school. On three of the COD areas -- values related to jobs, knowledge about jobs and generally useful skills -- average performance of black 17-year-olds attending school was the same as or below average performance of white 17-year-olds not attending school. While the number of 17-year-olds not in school was relatively small, totalling 7% of the entire 17-year-old population, these results might be cause for some concern.

Region

The pattern of performance for regions of the country was about the same for in- and out-of-school 17-year-olds. For both groups, the Southeast was below the national level for the group, the Northeast was very close to the national level and the Central region tended to be slightly above this level.

The performance of the West, relative to the nation, differed for the in- and out-of-school groups. Western performance for 17-year-olds in school tended to be at or slightly below the national level of 17-year-olds in school. However, for the out-of-school group, on all but one set of items, Western performance was significantly above that of out-of-school 17-year-olds nationally.

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[2]Differences on subgroups of items do not appear in Appendix A; the interested reader should consult the Career and Occupational Development Technical Report: Summary Volume, Report 05-COD-21, 1973-74 Assessment of Career and Occupational Development (forthcoming).

Parental Education

Level of parental education was directly related to performance -- respondents whose parents had higher levels of education did better than those whose parents had lesser amounts of education.

For both groups, generally only those with a parent having some education beyond high school performed significantly above the national level. In all but the job-knowledge area, out-of-school 17-year-olds whose parents had some high school or had graduated from high school did about as well as out-of-school 17-year-olds as a whole. However, in-school 17-year-olds whose parents had some high school or had graduated from high school performed somewhat less well than the entire group of in-school 17-year-olds.

APPENDIX A

AVERAGE NATIONAL PERFORMANCE, GROUP DIFFERENCES AND STANDARD ERRORS OF DIFFERENCE

National Assessment uses a national probability sample to estimate the percentage of individuals in a given group who could successfully complete a given item. Thus, for example, when we say that "85% of the 17-year-olds gave a correct response," we mean that 85% is an estimate of the proportion of all 17-year-olds in the country who could have answered correctly. As in any sampling survey work, the percentage estimates are subject to sampling error because observations are made only on a sample, not on the entire population.

Like all statistical representations, these data provide an incomplete picture because the entire population was not assessed. The particular sample in this survey is only one of a large number of all possible samples of the same size that could have been selected using the same sample design; and the average, or mean, percents correct computed from the different samples could well differ from each other. In order to estimate the effect of this sampling variability on the results, National Assessment calculates standard errors.

A standard error of the sample mean is a measure of the sampling variation among the means of all possible samples; it is used to estimate the precision of the mean obtained in a particular sample. In about 95% of all possible samples, the interval from two standard errors below to two standard errors above a particular sample mean can be expected to include the population mean -- that is, the average of the means of all possible samples. A particular interval computed in this way is called a 95% confidence interval to indicate how certain we are that the interval we constructed contains the average of all possible samples. For example, if a mean were 50.0% with a standard error of 0.5, then the limits of the 95% confidence interval would be about 49.0 and 51.0%. Confidence intervals of two standard errors are used throughout this report. Readers can easily compute other confidence intervals if they choose to do so.

The following tables show mean group differences from the average national performance and standard errors of these differences at each age level. A positive difference indicates that the group's performance was above that of the nation; a negative difference shows that the group's performance was below the national level. If the 95% confidence interval for a particular group does not include the national level of performance, we can say that the difference between the group's performance and the national performance is significant at the .05 level.

TABLE A-1. Average National Performance, Group Differences From National Performance and Standard Errors of the Differences for In-School and Out-of-School 17-Year-Olds: Knowledge of Own Interests and Abilities†

	In-School 17-Year-Olds		Out-of-School 17-Year-Olds	
	Percentage	Standard Error	Percentage	Standard Error
National mean percentage	66.15	.55	54.13	1.69
Population Groups	Difference From Nation	Standard Error of Difference	Difference From Nation	Standard Error of Difference
Sex				
Male	.81	.48	4.31*	1.38
Female	- .79	.48	-5.13*	1.67
Race				
Black	-6.11*	.79	1.03	4.24
White	.96*	.16	.81	1.12
Region				
Southeast	-2.74*	1.04	-4.86	3.00
Northeast	-2.46*	.87	- .14	2.60
Central	2.97*	.84	5.69	3.40
West	1.23	1.03	1.48	2.32
Parental education				
No high school	-7.19*	1.48	-7.94*	3.03
Some high school	-4.36*	1.16	- .24	2.27
Graduated high school	-1.53*	.72	.17	2.68
Post high school	3.48*	.48	8.03*	2.82

†*Number of exercises: 10.*
**Indicates significant difference from the nation at the .05 level.*

TABLE A-2. Average National Performance, Group Differences From National Performance and Standard Errors of the Differences for In-School and Out-of-School 17-Year-Olds: Job-Related Values†

	In-School 17-Year-Olds		Out-of-School 17-Year-Olds	
	Percentage	Standard Error	Percentage	Standard Error
National mean percentage	73.62	.30	63.61	1.24
Population Groups	**Difference From Nation**	**Standard Error of Difference**	**Difference From Nation**	**Standard Error of Difference**
Sex				
Male	-1.71*	.30	- .41	1.12
Female	1.67*	.30	.37	1.08
Race				
Black	-7.30*	1.33	-9.42*	2.49
White	1.22*	.20	2.28*	.69
Region				
Southeast	-1.16*	.42	-3.06	2.10
Northeast	.18	.49	-1.52	2.22
Central	.84	.46	.55	1.60
West	- .23	.62	4.09*	1.78
Parental education				
No high school	-4.95*	1.10	-7.47*	3.06
Some high school	-1.26	.80	- .68	1.70
Graduated high school	- .50	.41	.87	2.14
Post high school	1.97*	.31	8.48*	2.10

†Number of exercises: 24.
**Indicates significant difference from the nation at the .05 level.*

TABLE A-3. Average National Performance, Group Differences From National Performance and Standard Errors of the Differences for In-School and Out-of-School 17-Year-Olds: Job Knowledge†

	In-School 17-Year-Olds		Out-of-School 17-Year-Olds	
	Percentage	Standard Error	Percentage	Standard Error
National mean percentage	74.05	.26	61.13	.98
Population Groups	Difference From Nation	Standard Error of Difference	Difference From Nation	Standard Error of Difference
Sex				
Male	- .60*	.21	- .80	.62
Female	.54*	.20	.82	.62
Race				
Black	-11.94*	.61	-13.13*	1.48
White	1.84*	.14	3.43*	.69
Region				
Southeast	-3.08*	.67	-6.39*	1.75
Northeast	.70	.44	.03	1.76
Central	1.45*	.34	3.12*	1.28
West	- .29	.43	5.01*	1.34
Parental education				
No high school	-6.92*	.86	-8.68*	1.80
Some high school	-4.46*	.48	-2.96*	.95
Graduated high school	- .71*	.30	2.92*	1.33
Post high school	3.33*	.22	10.01*	1.45

†*Number of exercises: 75.*
**Indicates significant difference from the nation at the .05 level.*

TABLE A-4. Average National Performance, Group Differences From National Performance and Standard Errors of the Differences for In-School and Out-of-School 17-year-Olds: Generally Useful Skills†

	In-School 17-Year-Olds		Out-of-School 17-Year-Olds	
	Percentage	Standard Error	Percentage	Standard Error
National mean percentage	71.17	.33	56.83	.99
Population Groups	Difference From Nation	Standard Error of Difference	Difference From Nation	Standard Error of Difference
Sex				
Male	- .09	.29	-1.38	1.04
Female	.06	.26	1.11	1.08
Race				
Black	-15.96*	.89	-16.64*	2.21
White	2.18*	.19	4.53*	.92
Region				
Southeast	-3.36*	.75	-8.05*	1.98
Northeast	1.02	.54	.81	1.71
Central	2.10*	.48	4.10*	1.37
West	-1.20*	.57	5.58*	1.44
Parental education				
No high school	-6.76*	1.06	-9.14*	2.08
Some high school	-6.20*	.78	- .69	1.37
Graduated high school	- .85*	.38	1.26	1.70
Post high school	3.51*	.27	9.30*	1.61

†Number of exercises: 71.
**Indicates significant difference from the nation at the .05 level.*